Power of Place West

Clean Energy Pathways and Land-Use for Economy-wide Decarbonization

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Power of Place Objective

- The transition to a clean economy will require significant investment in new clean energy infrastructure, such as power plants, transmission lines, and energy storage.
- Together, this new electricity infrastructure will require a significant amount of land.
- This analysis helps inform answers to important questions on the road to achieving western decarbonization goals:

WHAT COULD THE FUTURE ELECTRICITY SYSTEM OF THE WEST LOOK LIKE?

WHAT COULD THIS MEAN FOR LANDS ACROSS THE WEST?

PoP West Study Questions

1. What are the land-use implications from pursuing an economy-wide, net-zero emissions target in the eleven western states that make up the western interconnect?

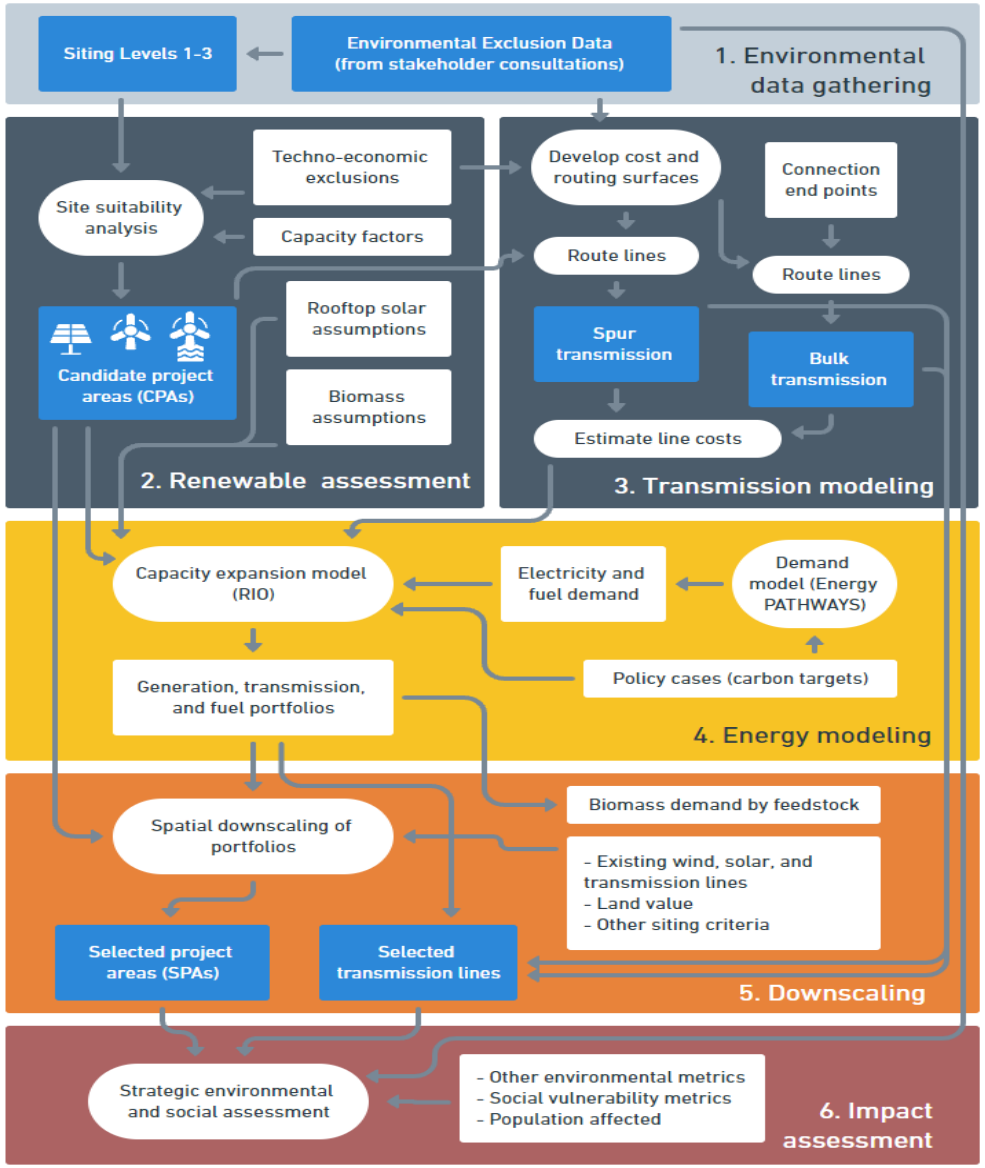
2. In a net-zero transition, what are the costs and benefits from increasing land-use protections in the eleven states in the western interconnect?

3. How sensitive are #1 & #2 to alternate decarbonization pathways?

   - High electrification
   - No fossil fuels (“100% RE”)
   - Slower demand-side electrification
   - Constraints on rates of renewable build-out

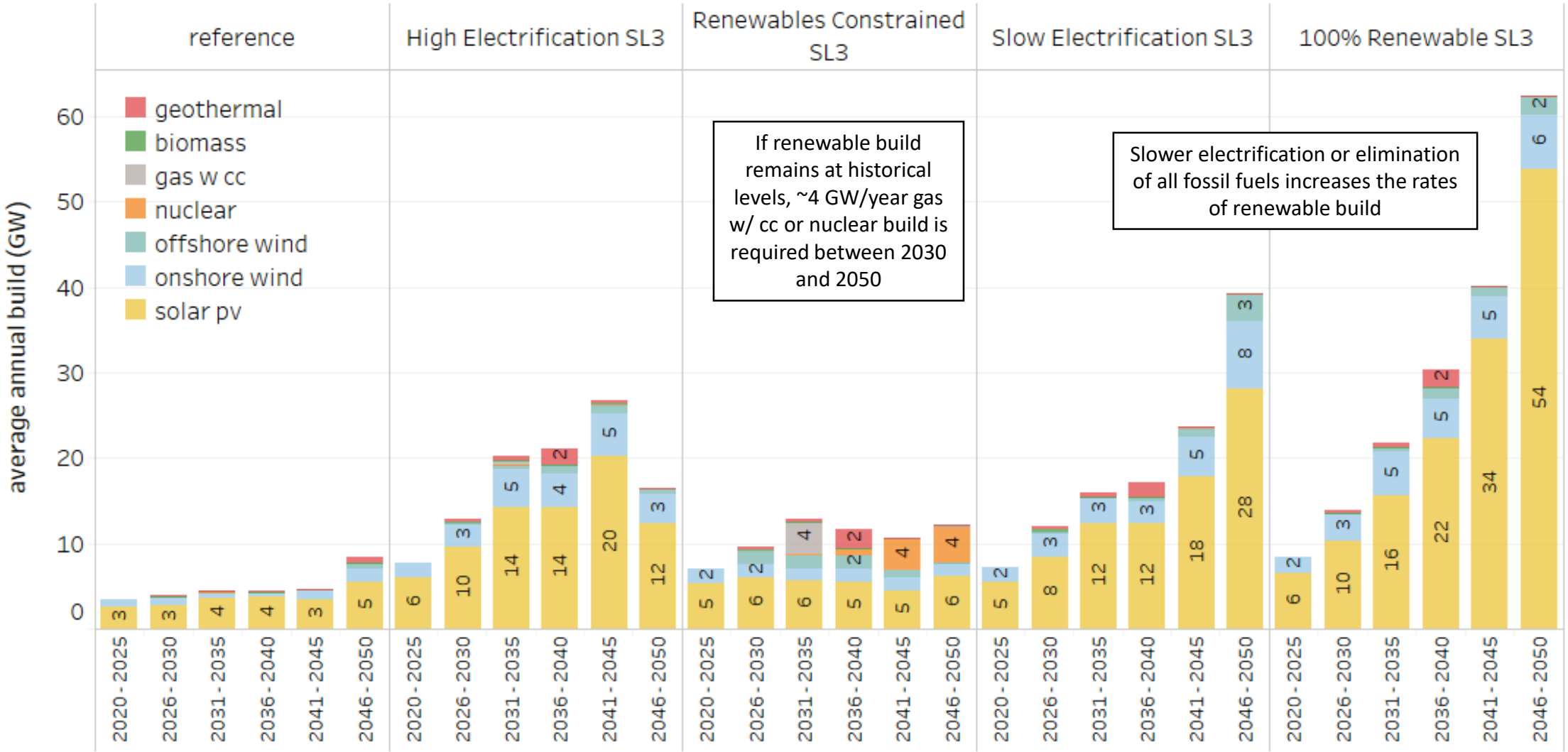
** All findings will be published in a forthcoming peer-reviewed journal article in the spring/ summer of 2022**

Power of Place West Assessment Methods

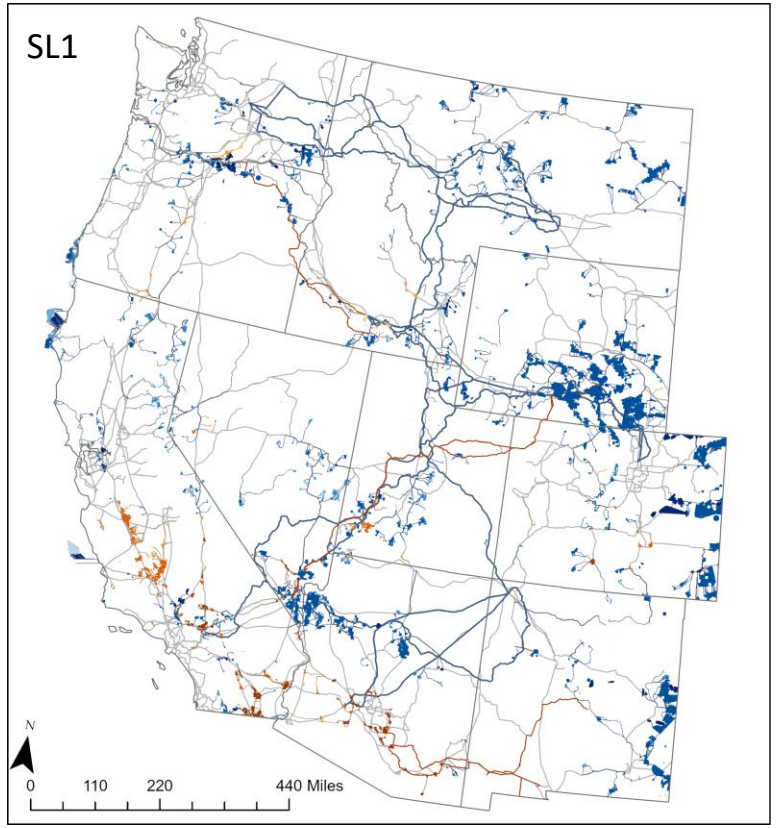


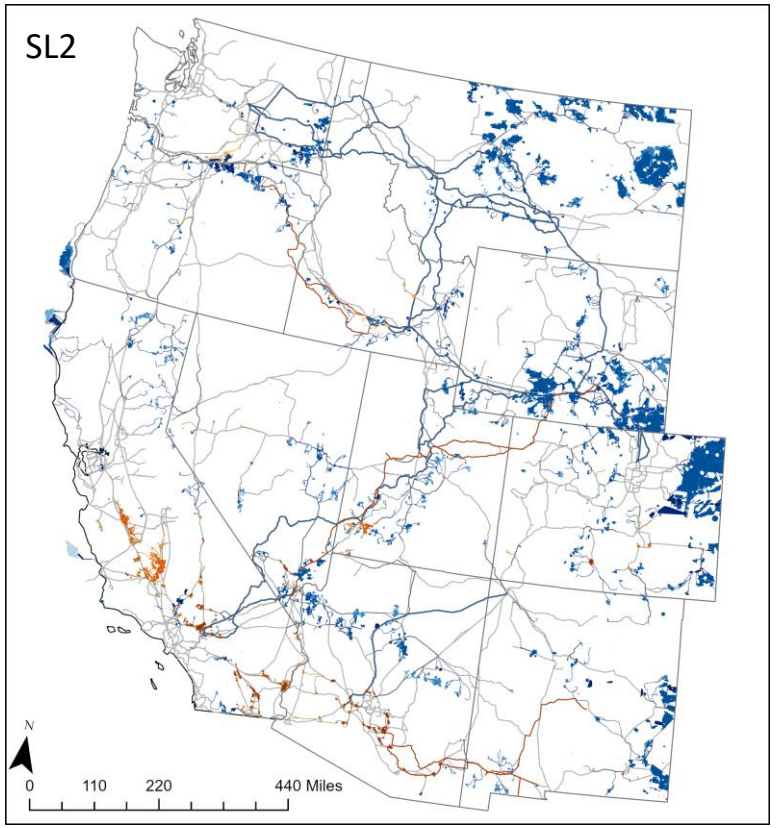
- Create Wildlife, Habitat, Environmental Map (Siting level 1-3, where 3 is most protective of conservation areas)
- Develop Energy Supply Curves (Economywide, high electrification, renewables only, and/or constrained development)
- Model Energy Capacity Scenarios
- Downscale Energy Generation and Transmission (optimal location for technology and transmission needs under different citing levels)
- Assess Environmental and Social Impacts

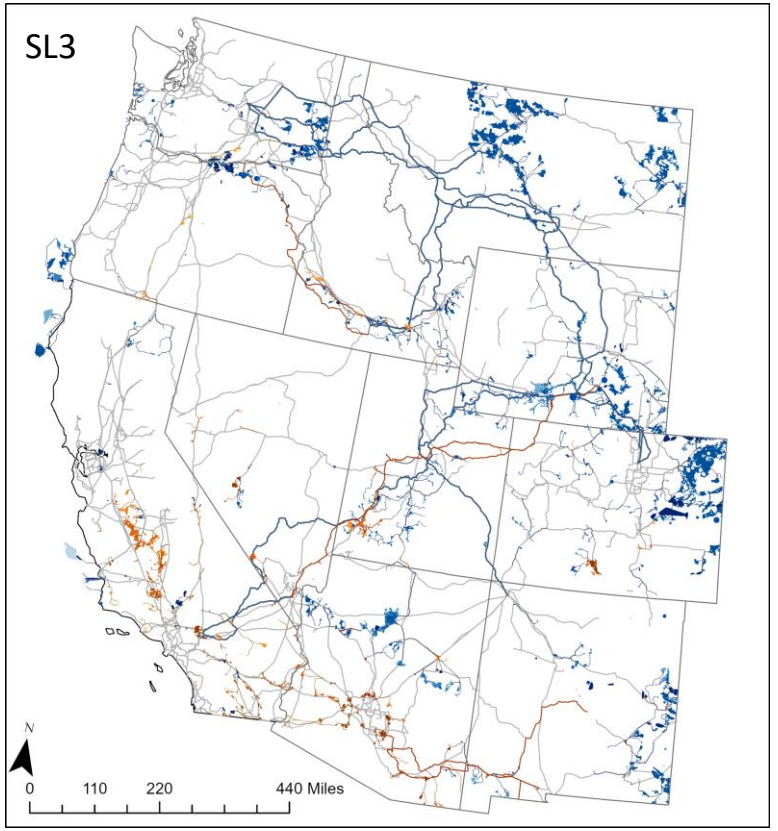
Renewable Energy Buildout Rates



Solar, Wind and Transmission Build-Out w/Different Levels of Land Protection







Key Takeaways

- Reaching net-zero is feasible; while land intensive and can be done while protecting biodiversity
- Environmental siting protections can protect biodiversity at nominal cost
- Rate of renewable development will need to double every 5 years; we to invest in the workforce, innovation, and policies that accelerate deployment
- Regional planning and policy coordination are needed to facilitate major energy expansion after 2030
  - Increase in resource sharing
  - Interstate transmission will include upgrades, colocation, and new siting coordination

What is next?

- Sharing siting level data and areas of opportunity identified in the model for each state; potential partnerships with states on improving model
- Downscaling scenarios and data for individual states to use for planning
- Develop policy recommendations for consideration

Questions and Discussion

The Nature Conservancy

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